Amendments to the Specification:

[0008] The present invention relates to an alternating current electric machine, and in particular, an alternating current electric motor, which ~~could~~ may be provided in the form of a single phase electric motor or a multiphase electric motor with at least three phases including a synchronous generator with at least two poles ~~or more~~. The electric motor ~~including~~ includes main windings and de-saturation ~~of~~for additional windings in which each additional winding ~~being~~ is fed through at least one ~~or multiple capacitors~~ capacitor. ~~Then each~~ Each additional winding is fed through ~~one or multiple capacitors~~ at least one capacitor in ~~opposite~~ a different phase ~~angles~~ angle and opposite field ~~directions from~~ direction relative to the phase angle and field direction of each respective main ~~windings~~ winding. ~~The electric motor is specifically distinguished and one of the inventive features is clearly distinct in the~~ The total cross section of the wire used on each main and additional winding, ~~and~~ follows a distinct respective ratio of predetermined value. This ratio ~~may be~~ is approximately 2/3 for the main winding and 1/3 for the additional winding.

[0009] The invention in a preferred form includes a winding process for the alternating current electric motor, in that the two windings of said electric motor ~~being~~ are built at one time in one only operation, as a single step.

[0010] Conveniently, the present invention includes a ~~process of the calculation of an~~ formula for calculating the value, in mocrofards, of each additional winding capacitor, ~~with a formula in which the capacitor value in Micro Farads is~~. The value is directly proportional ~~of~~ to ~~the actual~~ full load ~~currently in a process consumed by the electric motor or by the synchronous generator, reverse~~ current and inversely proportional ~~of~~ to the square of the line voltage ~~and affected by a multiplying factor within a range of~~. The value so obtained is multiplied by a constant having a value between 0.25×10^6 and 0.3×10^6.

(0011) Advantageously, a single phase electric motor, according to the present invention, ~~would comprise~~ includes first and second main windings coupled to a main common point and first and second main potential lines of a line voltage, and first and second additional windings coupled to a capacitor, ~~and the~~ The first and second potential lines ~~in a~~ are electrically connected in parallel ~~connection with~~ relation to the first and second main windings. The first and ~~the~~ second additional windings ~~generating~~ generate a field in opposite direction ~~with a corresponding one of~~ relative to the field of the first and second main windings, respectively.

(0012) ~~Suitably, a~~ A start winding is coupled between one of the first and second potential lines, a start capacitor~~, with~~ and a switch are coupled between the start capacitor and one of the first and second potential lines.

(0013) ~~A distinct advantage is that each~~ Each first and second main winding has a ~~main~~ first wire size and each of the first and second additional windings has ~~an additional~~ a second wire size, ~~in which the main~~ The first wire size is about twice the ~~additional~~ second wire size.

(0030) Figures 2 and 3 ~~show the~~ diagrammatically depict a conventional three phase motor and the windings are indicated by the reference numbers (1), (2), and (3)~~, with the~~ The incoming line voltage of the three ~~phase are~~ phases is indicated as (R), (S), and (T) ~~with~~ and the center point of the star connection ~~as~~ is denoted (0).

(0033) It is also known to provide improvements in single phase electric motors~~,~~ by providing a start capacitor in series with a centrifugal switch or a disconnecting relay when added to the start winding circuit. An accurate calculation of the run capacitor sizes in ~~Micro Farads~~ microfarads (μf) optimizes the efficiency of the electric motor by enhancing starting torque, starting current and running temperatures.

(0036) Figure 6 illustrates a star configuration, with the three main windings denoted (1), (2), and (3), and the three additional windings denoted (4), (5), and (6). The additional winding capacitors are denoted (7), (8), and (9), the three phases line voltage connections are denoted (R), (S), and (T), and the center point of the stars ~~are~~ is denoted (OP) for the main winding ~~(OP)~~ and is denoted (OS) for the additional winding ~~(OS)~~.

(0045) Calculation of the additional winding capacitor rating in ~~Micro Farads~~ microfarads;

(0047) C is the ~~capacitor value~~ capacitance in ~~Micro Farads~~ microfarads per phase;

(0051) This formula does not ~~allow us to~~ accurately calculate the optimum capacitor value, because it does not ~~taking in~~ take into consideration the actual field working under load parameters of the motor. So even though these prior art types of electric motors ~~runs~~ run at a better power factor ~~and does save~~ with some energy savings, they ~~are a lesser quality product, with a shorter life term, and they~~ can still be improved upon.

(0052) Figure 8 depicts, according to the present invention, a single phase electric motor. The main winding is shown in two half sections (1a) and (1b) separated by a middle point (0). The additional winding also shows two half sections (5a) and (5b) ~~separated by a~~ connected electrically

in series with capacitor (6). The start winding (2), the start capacitor (3), and the centrifugal switch or the disconnecting relay (4) are also shown. The single phase electric motor, according to the present invention, depicts an additional winding that is parallel connected with the main winding. Each of the half sections are in opposite field directions with each other and series connected at the center point to a capacitor. The center point of the main winding is used for dual voltage purpose.

[0053] Figure 9 shows a three phase electric motor, according to the present invention, ~~on~~ connected in a delta configuration. The main windings are denoted (1), (2), and (3), the additional windings are denoted (4), (5), and (6), and the additional winding capacitors are denoted (7), (8), and (9). The delta connection points of the three main windings are (R), (S), and (T). ~~It should be noted that according to the present invention, that the~~ The incoming line voltages connection points are (Ra), (Sa), and (Ta). Each additional winding is fed from a different phase than its respective main winding~~, which puts it on an~~ and is reverse connected relative to its associated main winding ~~opposite field situation~~ so that the respective fields of the main and additional windings are opposed to one another~~predetermined capacitor value that allows it to feed this winding~~. The value (capacitance) of the additional winding capacitor is predetermined.

[0055] Each additional winding is fed with a different phase than its respective main winding. The de-saturation additional winding (4) of main winding (1) is connected through capacitor (7) to in line ~~(5)~~ (S) of main winding (2). De-saturation additional winding (5) of main winding ~~(7)~~ (2) is connected through capacitor (8) to in line (T) of main winding (3).

(0056) De-saturation additional winding (6) of main winding (3) is connected through capacitor (9) to in line (R) of main winding (1). This clearly shows the opposite field position of the different winding. ~~It should be noted, that according to the present invention, we have~~ There is a single star connection point.

(0057) Figure 11 illustrates winding internal connections of a four poles one delta adjacent poles, according to the present invention, for a three phase electric motor. The connection point for the in line (R) ~~being~~ is point (4) for the main winding and point (7) for the additional winding. The connection point (6) is for the in line T, and the connector point (8) is for the additional winding. The additional winding capacitors ~~being~~ are denoted (1), (2), and (3).

(0058) ~~It should be noted that the~~ The respective delta connections of each main and additional windings are three delta points (4), (5), and (6) of the main winding which are perfectly symmetrical and equidistant from each other. This novel configuration ~~totally~~ corrects the efficiency

and energy saving problem of the prior art in relation to the direction of rotation. This inventive ~~illustration~~ solution provides a four poles one circuit delta, which corrects the rotational problem at other speeds and multiple ~~number~~ numbers of circuits, in either a delta configuration or a star configuration.

[0063] Both windings, according to the present invention, can be wound and inserted ~~at once~~ in ~~only one~~ a single step operation ~~as a single step~~. It is feasible to calculate the ~~value~~ capacitance of the additional winding capacitor in ~~Micro Farads~~ microfarads per phase. This value is directly proportional to the real full load current in ~~Amperes~~ amps per phase~~. Reverse~~ and inversely proportional of the square of the line voltage in volts. The value timing is then determined by a multiplying factor that is approximately between 0.250×10^6 and 0.3×10^6. ~~The novel interconnection of the two are in opposite field directions and on different phases from each other.~~ The additional winding and the additional winding capacitor are connected to one another in series relation and are connected in parallel relation to the main winding. Moreover, the additional winding and the additional winding capacitor are reverse connected relative to the main winding and are not connected to the same phase voltage as the main winding. More particularly, in Fig. 9, main winding (1) is connected to voltage phase R_A, and auxiliary winding (4) is connected to voltage phase S_A through capacitor (7); main winding (2) is connected to voltage phase S_A, and auxiliary winding (5) is connected to voltage phase T_A through capacitor 8, and main winding (3) is connected to voltage phase T_A, and auxiliary winding (6) is connected to voltage phase R_A through capacitor 9. The same construction applies to the star or "wye" configuration of Fig. 10, where the respective voltage phases are denoted R, S, and T.

(0065) ~~Conveniently, each~~ Each additional winding is fed through one or more ~~multiple~~ capacitors ~~in opposite~~ so that current flowing through said additional windings has a different phase angle and an opposite field ~~directions from each~~ direction relative to the phase angle and field direction of the current flowing through the respective main windings and in which the total cross-section of the wire size used on each main and additional winding are of predetermined dimensions.

(0066) ~~Suitably, the~~ The calculation process of the winding capacitor value follows a specific formula in which the ~~capacitive~~ value in ~~Micro Farads~~ microfarads is directly proportional to the actual full load current in ~~Amperes~~ amperes consumed by the electric motor, or produced by the synchronous generator, ~~reverse~~ inversely proportional to the square of the line voltage and

~~affected by~~ directly proportional to a multiplying factor that is ~~approximately~~ between about 0.25 x 10^6 and 0.3 X 10^6.

(0067) ~~It will be appreciated that in a~~ The novel single phase electric motor ~~characterized in that~~ of this invention includes first and second main windings coupled to a main common point and first and second potential lines of a line voltage~~,~~. It further includes first and second additional windings coupled to a winding capacitor~~, and the~~ The first and second potential lines are electrically connected in a parallel connection with the first and second main windings~~, each~~. Each of the first and second additional windings ~~generating~~ generates a field in an opposite direction ~~with~~ relative to a corresponding one of the first and second main ~~winding~~ windings.

(0068) ~~Preferably, the~~ The first and the second main windings ~~has~~ have a ~~main~~ first wire size and each of the first and the second additional windings has ~~an additional~~ a second wire size. ~~, in which the main~~ The first wire size is approximately twice the ~~additional~~ second wire size.

(0069) ~~In a convenient form, a~~ The novel multi-phase electric motor ~~comprises~~ includes a plurality of main windings connected in delta configuration at three line connection points having a line voltage~~,~~ and each of the main winding ~~having~~ has a ~~main~~ first wire size~~, and a plurality of segments connected in parallel with the plurality of the main winding~~. ~~Each segment including an~~ An additional winding and ~~a~~ an additional winding capacitor are connected in series with one another and in parallel relation to each main winding, with the additional winding having ~~an additional~~ a second wire size less than said first wire size and ~~a phase~~ an angle different ~~than~~ from and generating a field in opposite direction ~~with a corresponding one of the~~ than its respective main winding.